

earnings over expected earnings is evidence of the market power of these companies in these markets.

Hausman further seeks to justify the excessive rates of return earned by the major cellular carriers by attributing them to the additional risk exposure of cellular investments relative to LECs and IXC's. As a basis for alleged risk premium, Hausman utilizes "beta" values. The "beta" of a company measures how sensitive it is to the underlying market movements where a beta equal to 1.0 is the average risk for a company. Thus, the higher the beta value, the more risky a security is considered to be. In turn, the beta value is used as an input to the "Capital Asset Pricing Model" to derive an expected rate of return as a function of risk.

While Hausman quotes one authority's description of beta as "the standard risk measure for individual securities"⁷³, his attempts to rely on this measure in support of his claims of excessive cellular risk are unconvincing.

The most immediate problem with Hausman's reliance on beta measures is that for cellular investments, published measurements are simply not available on a wide basis. As Hausman admits, "[v]ery few stand alone cellular companies exist so reported betas are scarce."⁷⁴ In fact, Hausman only finds one carrier, McCaw, for which a beta value is published by Value Line, an investment advisory service. Thus, no data is provided on an

73. AirTouch, Hausman at 20.

74. AirTouch, Hausman at 17.

industry-wide beta by which the riskiness of California returns can be evaluated. Yet, the lack of data does not stop Hausman from making the sweeping generalization from the single McCaw example that "the risk of cellular telephone is considerably greater than the risk for telephone companies..."

Even if generalizations about the riskiness of California cellular investments could validly be made from a single carrier, Hausman's inferences concerning the relative risk of McCaw compared with LECs raises serious conceptual and empirical problems. Hausman fails to mention that the validity of beta and CAPM as valid measures of investment risk and return relationships has been subject to significant academic challenge. For example, Blume and Friend (1975) analyzed the major classes of liabilities and assets (including stock portfolios) held by individuals.⁷⁵ When 1,000 stockholder were asked to describe the measure of risk that they used in evaluating stocks, while 82 percent said that they evaluated risk, only 17 percent used betas. The remainder used earnings volatility (45 percent) or price volatility (30 percent) as indicators of risk. These results raise questions as to how reliable beta measures are as an indicator of systematic risk or expected return.⁷⁶

In summarizing a review of empirical tests of CAPM, one authority concluded "What we have found thus far is that there

75. Modern Portfolio Theory & The Capital Asset Pricing Model by Diana R. Harrington, University of Virginia, Prentice-Hall, Inc. Englewood Cliffs, New Jersey 07632 1983, at 48-49.

76. Id. at 49

simple CAPM does not describe history or expectations very well."⁷⁷ For example, while beta measures absolute variances of an individual security's return relative to a market proxy on a historic basis, it does not consider whether the variance is skewed positively or negatively. For example, Arditti (1967) found that the increase in return was less than proportionate for each increase in risk, and that skewness was important in explaining return behavior.⁷⁸ In his use of beta, Hausman fails to indicate how positively skewed the risk variance is for McCaw's returns, or how this might lower the expected return consistent with Arditti's findings.

Even to the extent Hausman's reliance on beta measures might otherwise have some bearing on risk/return relationships, the correct measure of beta seems to vary depending upon who is doing the measuring. For example, while Value Line reports a 1.85 beta for McCaw, Hausman computes a beta of 2.11.

In summary, given the measurement uncertainty and modeling weaknesses associated with beta and CAPM as indicators of risk/return relationships, the FCC should be skeptical of the purported risk-adjusted returns for McCaw offered by Hausman.

LACTC further attempts to raise doubts about the CPUC's calculations of its average annual after-tax accounting rate of return of 56.2 percent, complaining that the CPUC did not explain the methodology leading to this conclusion. We will do so now.

77. Id. at 56

78. Id. at 51.

We calculate the average annual rate of return by adding together the five annual rates of return and dividing the result by five. We calculate each annual rate of return by adding together retail and wholesale sales revenues (as reported by the companies on their annual reports to the CPUC), and subtracting combined (retail and wholesale) operating expenses and income taxes, as reported by the companies. We then divide the resulting after-tax net income by the average net plant in service (average of beginning-of-year and end-of-year plant in service minus the average of beginning-of-year and end-of-year accumulated depreciation.) To the best of our knowledge, this is a perfectly standard and acceptable method of calculating average after-tax rates of return. Contrary to LACTC's challenge, all of the numbers we used in this calculation are taken directly from publicly available materials, provided by the cellular companies' themselves in annual reports to the CPUC.⁷⁹

In contrast, we are unaware of the method LACTC used to calculate a separate after-tax return on its wholesale operations, because the annual reports it submits to the CPUC do not break down its assets into retail and wholesale assets, nor do these reports furnish any calculated rate of return, either on

⁷⁹. Charles River Associates' argument completely mischaracterizes the CPUC's discussion on the carriers' rates of return. The CPUC did not examine just one year's rate of return, instead we looked at each carriers' average return over 5 years. Because cellular service began only 10 years ago, examining the last 5 years is clearly a good indication of a company's profitability.

a wholesale, a retail, or a combined basis.⁸⁰

LACTC further asserts that the CPUC figures (which we have shown above are based on the company-provided figures) do not reflect actual returns to LACTC's investors because the reports to the CPUC do not take account of the initial investments made by the partners in acquiring and defending their cellular licenses. Although LACTC alludes to a license cost exceeding \$300 per POP, LACTC carefully avoids citing the amount it actually paid for the license.

We disagree that merely because sums were actually paid for licenses the full value of such payments should be included in the investment base used for measuring excess return. Including the full license value in the investment base as an opportunity cost of market entry artificially reduces the apparent profit return in assessing market power. Following such a misguided approach, any entry barrier can be erased as a source of duopoly profits and simply turned into a "cost of doing business" through reclassification as a capitalized investment.⁸¹ Such reclassification masks the otherwise identifiable duopoly profits.

80. The carriers opposed the adoption of the Uniform System of Accounts for allocating costs between wholesale and retail. There are no adopted accounting rules to govern the allocation of costs between wholesale and retail. Moreover, we have no independent auditor's statement certifying the accuracy of information submitted by LACTC's in-house controller.

81. Thomas W. Hazlett, "Errors in the Haring & Jackson Analysis of Cellular Rates," January, 1994, at 9.

In short, the mere fact that a carrier has paid substantial sums for a cellular license does not entitle the carrier to unrestricted opportunity to earn excessive profits through high prices to compensate for such payment. We are not so certain that sums that LACTC might have paid if it had bought its license at today's prices warrant any return. Furthermore, LACTC cites no accounting rules that would keep LACTC and other carriers from including in their capital accounts those amounts they actually paid for their cellular licenses, nor are we convinced that these accounts do not already reflect at least some measure of the costs incurred by the cellular carriers in acquiring their licenses. To the extent that these accounts already do reflect such costs, adding on an imputed spectrum value will double count this item in the investment base on which returns are calculated. Finally, LACTC itself candidly and emphatically admits that "[t]here can be no argument that the winning bidders [in the narrowband auction] anticipated either monopoly or duopoly profits from their investment."⁸²

2. The CPUC Properly Used And Applied Q-Ratio Analysis

The duopoly carriers next maintain that the CPUC is incorrect in using Q-Ratio analysis as an indicator of market power because it fails to properly account for restrictions to entry. This is ironic for many reasons. First, the Q-ratio is

⁸². LACTC at 26-27.

an accepted standard measure for market power. The FCC itself relies on Q ratio analysis in looking at the different industries it regulates. As recently as September 19, 1994, In the Matter of Implementation of Section 19 of the Cable Television Consumer Protection and Competition Act of 1992 and Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming (CC Docket No. 94-48), the FCC found that Q-ratios suggest that cable television operators possess substantial market power. If the FCC is to believe CCAC and its consultants, the FCC also improperly used Q-ratio analysis to conclude that the cable industry, which like cellular has restrictions to entry, has undue market power.

The second reason the carriers' outcry against Q-ratios is ironic is that the carriers themselves, in other forums, have advocated Q-ratio analysis as a means to assess market power. Pacific Telesis, until recently the parent company of AirTouch, hired Thomas Hazlett, the same economist AirTouch is trying to discredit in its opposition to the CPUC petition, to testify in a court case involving the competitiveness of the cable television industry. In that case, Hazlett cited high Q-ratios for the cable industry as an indication of the market power of cable operators.⁸³

⁸³. Declaration of Thomas W. Hazlett dated February 14, 1994, at 4-5, submitted in Pacific Telesis Group et. al. v. US et. al, No.C93-20915-JW, Memorandum of Law in Support of Plaintiffs' Motion for Summary of Judgment, as cited in Reply Comments of the County of Los Angeles, March 18, 1994, in CPUC I.93-12-007.

Finally, Hausman, on behalf of AirTouch, attempts to discredit Hazlett's Q-ratio analysis by stating that the Q-ratios Hausman calculated for the three primary ESMR companies are only slightly lower than those calculated by Hazlett for cellular companies.⁸⁴ Hausman raises the rhetorical question "How can the ESMRs have such high Q-ratios if they are just beginning operation?" to which he then provides his preferred answer that "investors reward high expected growth with high market prices."

Hausman, however, fails to mention a far more convincing explanation for the high Q-ratios of the three ESMR companies. The most obvious explanation is that, in addition to monopolists, firms that are just beginning operation (and especially firms that have not even begun operation) and that have bright prospects for sales and earnings growth are precisely the type of firms that one would expect to have very high Q-ratios. It is exactly this type of firm that may have sunk only a small fraction of its ultimate amount of plant investment (the denominator of the Q-ratio), while the market is valuing its equity (the numerator of the Q-ratio) according to expectations of future earnings streams, much of which will be derived from plant not even acquired yet. Charles River Associates seems to agree with this more convincing explanation when it states, "Following Professor Hazlett, the Commission states that '[f]or a competitive market the ratio is one or near one.' This statement is true, however, only if the industry is in long-run

84. AirTouch, Appendix E at 14.

equilibrium. A firm or industry with a small customer base but with expectations of high rates of growth can have a Q ratio well in excess of one."⁸⁵ Presumably Professor Hausman, Charles River Associates, and any reasonable observer would agree that the emerging ESMR companies are much further from long-run equilibrium than are the ten-year-old cellular companies. The fact that the ESMR companies' Q-ratios, at this infant stage of their development, are not substantially higher than the Q-ratios of the cellular industry itself suggests that the cellular companies have substantially greater market power than will the emerging ESMR companies.

3. It Is Not Appropriate to Impute A Scarcity
Spectrum Value to Earnings

Contrary to the suggestion of several carriers, the extraordinary earnings enjoyed by carriers operating in major metropolitan markets in California should not be downwardly adjusted to account for the value of scarce spectrum. As the CPUC explained in its petition, given the substantially higher value of cellular spectrum compared to other scarce spectrum, the CPUC reasonably concluded that the lack of competition in the cellular industry and the ability to extract duopoly rents by that industry are factors that make cellular licenses so lucrative and attractive to investors. ⁸⁶

85. CCAC, Appendix A at 27.

86. Petition at 54-61.

Moreover, as stated in a 1991 report by Morgan Stanley:

Investing \$170-\$200 per POP, or more -- a valuation that many analysts suggest is warranted -- in a business that requires hard assets of less than \$20 per POP is justified only if there are enormous returns, and such returns are possible only in an unregulated or shared-monopoly business.⁸⁷ (emphasis added)

Charles River Associates nevertheless contends that cellular spectrum is a scarce resource and, accordingly, the price of such spectrum has been bid above its average cost. While Charles River Associates' discussion of scarcity rents is informative, it is difficult to see how it applies to a resource that has excess capacity. The capacity for cellular spectrum can increase substantially if digital technology is employed or if the cell configuration is reduced. Depending on whether a company deploys TDMA or CDMA digital technology, the capacity can be increased six- to ten-fold. If digital technology is only beginning to be deployed, what is the rationale for cellular companies to earn scarcity rents? The CPUC has correctly characterized these excessive rents as duopolistic profits and indicative of dominant market power.

Hazlett's paper entitled "Errors in the Haring & Jackson Analysis of Cellular Rents" is very instructive on the issue of spectrum value. On page nine of his paper Hazlett states:

⁸⁷. Edward M. Greenberg and Catherine M. Lloyd, Telecommunications Services, POP Out: The Changing Dynamics of the Cellular Telephone Industry (Morgan Stanley, New York, April 1991).

The reason we attribute the rents to a monopolistic (cartelistic!) restriction is that -- in the most technically correct sense -- the license itself is not the purchase of a resource, but is literally an operating permit. We are not selling ... frequencies, which would force buyers to make cost/benefit calculations based on the alternative uses of the resource. Rather, we actually are allocating operating licenses enabling only certain privileged firms to serve customers, using a scarce input at zero price. Prices paid for these rights do not reflect the opportunity cost of spectrum ... but solely the supra-competitive profits available from operating such a business.

Hazlett is right to characterize the rents flowing from cellular operating licenses as supra-competitive profits, because the allocation of these licenses has never been done according to competitive market principles. As Hazlett says on page 10:

The foremost right included in a license is, of course, an implicit or explicit protection from competitive entry. If holders of FCC "spectrum licenses" could compete freely with one another, the "law of one price" would begin to assert itself and voluntary reallocation would break out all along the dial. The aggregate transaction value of cellular licenses utilizing 50 MHz of nationwide spectrum space are over 7 times the transaction value for all the licenses utilizing the 400 MHz of spectrum space allocated to radio and television broadcasting, for a market price differential of 62 times (on a per-MHz basis). Why is the opportunity cost of "spectrum" so low in one market and so high in another? Because we are not looking at spectrum values, but at license values.

(Emphasis in original.) Perhaps this is why, with the exception of LACTC, those duopoly carriers that address the issue of spectrum value do not provide the FCC any guidance on how it

should be imputed, or what value would be most appropriate. See App. M for complete Hazlett paper.

Even LACTC has contradicted itself. When it was in LACTC's financial interest to avoid increased tax liability, LACTC candidly admitted to the California Board of Equalization that spectrum holds no value and should not be factored into earnings. LACTC expressly acknowledged that the high profits underlying its license value are indicative of market power. Specifically, LACTC said:

[C]ompanies in a competitive industry have no particular material or license value. If the market for cellular telephone services was perfectly competitive, it would be open to all sellers willing to make the required investment...Under competitive circumstances, therefore, any license value would be essentially zero.

The ... cellular telephone [market] ... is a special form of monopoly or oligopoly called a duopoly. This situation is the result of the FCC limiting to two the number of cellular telephone companies [sellers] in each SMSA... From the licensee's point of view, a license is valuable because it gives the holder some control over its market.

It is necessary to understand how the bidder would determine the price or the recipient would determine the value of the FCC license being acquired. In either case, one would calculate the earnings from the business which can be generated under the monopoly condition. These earnings would be greater than ... under competitive market structure and ... associated solely with the ownership

of the FCC license.⁸⁸

Not surprisingly, when it is now in LACTC's financial interest to impute a spectrum value to reduce the extraordinary returns that LACTC has earned to show that it is not deriving duopoly rents, LACTC has changed its tune, and completely ignores its prior admission. LACTC cannot have it both ways.

A closer look at LACTC's statements and calculations regarding spectrum value and rate of return may help to put the spectrum value issue in the proper light. LACTC recalculates the rates of return it would have experienced between 1989 and 1993 if it had had to invest \$1.2 billion more for cellular licenses than the amounts currently reflected in its books of account. Ignoring for the moment the fact that LACTC actually earned an average after-tax return of 56.2 percent, not 7.46 percent, over the past five years, the numbers LACTC provides here suggest that bidders in PCS license auctions are investing tens of millions of dollars for the chance to earn 7.5 percent in a market much more nearly to competitive than the cellular market. If one were to perform a similar adjustment to the rates of return on net plant for other carriers in major markets, their returns would be reduced to even lower levels. With risk-free interest rates now at

⁸⁸. "Declaration of Arthur A. Schoenwald in Opposition to Defendant's Motion for Summary Judgment and Adjudication of Issues," in Los Angeles Cellular Telephone Company v. California State Board of Equalization, et al., No. 509737 (Superior Court, Sacramento, California).

around 5%, and long-term U.S. Treasury bonds now yielding around 7.8%, this assertion strains credulity.

In sum, the imputation of a spectrum value to reduce the high rates of return enjoyed by many of the cellular carrier is neither appropriate nor practical.

F. Cellular Price Reductions Neither Indicate That Cellular Markets Are Competitive Nor That Cellular Prices Are Just and Reasonable to Consumers.

Contrary to the cellular carriers' allegations, the CPUC petition acknowledges that rates have declined over time in real terms and that discount plans offer consumers lower rates. However, carriers overstate the magnitude of price changes, understate the presence of parallel pricing, and ignore the existence of productivity gains that affect cellular prices. More fundamentally, they improperly assume that price changes necessarily indicate that competition is present and that prices are just and reasonable. That assumption is groundless.

Preliminarily, carriers raise two non-issues concerning our conclusions about price: (1) they claim that the CPUC did not acknowledge a decline in real prices; and (2) they claim that the CPUC failed to take into account the prevalence of discount plans. Neither of these claims is accurate. We state clearly in the text of our petition and its Appendix I that rates have fallen in real terms even for the basic plans. Petition at 34. In addition, we acknowledge that discounts are available for most consumers in most markets and that basic plans are no longer the

predominant plan. Petition at 40, 43. The tables in Appendix J of this reply summarize the findings in revised Appendix J of our petition. However, in neither case are price reductions or the availability of discount plans definitive evidence of effective competition.

At bottom, opposing parties appear to bring more heat than light to the analysis of price. It is unclear what AirTouch is attempting to demonstrate when, in its enthusiasm to dismiss our pricing analysis, it contradicts itself from one sentence to the next. For example, AirTouch begins a section titled, "Contrary to the CPUC's assertion, cellular rates in California declined" with the assertion, "The CPUC admits -- as it must -- that cellular rates in California declined."⁸⁹ We would urge the FCC to examine the data that the CPUC presented with its petition rather than the internally conflicting characterizations presented by the parties who oppose it.

The carriers make a number of accusations against the CPUC's analysis, none of which are true. We did not assume, nor could we reasonably be construed as assuming that, "consumers have not benefitted from these [discount] plans."⁹⁰ Nor, as GTE Mobilenet claims, did we argue that, "the value of the rate reduction is outweighed and should, therefore, not be counted in a rate trend review."⁹¹ Instead, we simply suggested that the

⁸⁹. AirTouch at 45.

⁹⁰. Airtouch at 48.

⁹¹. GTE Mobilenet at 35.

FCC take into account the significant costs, such as stiff termination penalties, associated with discount plans when evaluating price reductions. The fact that consumers are choosing these plans indicates only that they find them more beneficial than basic service plans. However, consumer preference for a discounted rate with a contract does not mean that consumers would prefer the same discounted rate with restrictions to discounted rates without restrictions. In other words, fully informed about their alternatives, we assume consumers would prefer a discount with no restrictions to the same percent discount with restrictions.

To be sure, the cellular carriers' consultants concede that a comparison "limited to rates of discount without taking these costs into account may overstate the magnitude of the savings that subscribers realize in switching to a discount plan."⁹² Consequently, direct comparison between price plans with no restrictions and price plans with restrictions is problematic. We would therefore urge that the FCC take this into account when reviewing the price data presented by the CPUC and others in this case.

1. The Carriers' Analyses of Price Changes, Are Seriously Flawed and Do Not Indicate A Competitive Industry

The price discounting behavior of cellular duopolists is consistent with the exercise of market power and cannot be

⁹². CCAC, Appendix A at 14.

considered as proof of competitiveness, as the cellular carriers claim. Firms with market power, even monopolists, can reduce prices in order to expand their market, to test demand, or to price discriminate.⁹³

In our petition we point out that measuring price changes in the cellular industry is problematic. Relying exclusively on tariffed or published prices, as the duopoly carriers do in their pricing analysis, is inappropriate in the context of changing usage patterns, bucket discounts plans, multiple discount plans, and changing terms of service. While analyzing published rates is adequate for a highly regulated industry with a single mandated rate structure, it is entirely inadequate for the much more lightly regulated cellular industry, with multiple tariffs that represent permanent and temporary discounts, various promotions, and separate schedules for analog and dual analog/digital equipment. Focusing on the best available rate, as the carriers do, is deceptive for two reasons: (1) it does not reveal what consumers are paying for their actual levels of

93. Several carriers claim that they have reduced cellular prices because of the competitive threat presented by Nextel as a new market entrant. However, if this were true, one would equally expect that cellular franchise values would also have dropped in anticipation of Nextel's entry. In fact, that has not happened. As the County of Los Angeles pointed out, cellular franchises are still trading in the \$200 per POP range, nearly five times the value-per-pop which these carriers attributed to Nextel's franchise. This suggests that Nextel is not viewed by the investment community as a viable competitive threat to the cellular industry, and that price reductions touted by the industry are not in response to Nextel's potential entry. Response of County of Los Angeles, attached Reply Comments in CPUC I.93-12-007 at 8.

usage and (2) it does not take into account costs associated with different services.

There are several ways in which looking at the best rate distorts pricing analysis. First, it is difficult to develop a consistent measure over time and across carriers because discount plans and promotions change and differ between time periods, markets and carriers. Additionally, in a given month, consumers on a particular bucket rate plan may have different levels of use and, as a consequence, pay different amounts per unit of use.⁹⁴ This of course assumes that all consumers are on the appropriate discount plan and that carriers generally allow consumers to shift between discount plans without a termination fee, as long as they remain. This is especially important for new customers who may not know what their usage pattern will be. Such assumptions, however, may not in fact be valid. While we know that consumers choose a plan that will lower their bill, we do not know much else about how consumers choose discount plans. Looking at the lowest available price for a bucket plan price ignores these factors.

To be sure, these measurement problems are not unique to the cellular industry. However, other service industries where discounts are the norm, such as commercial airlines and general

⁹⁴. A good example is BACTC's "Standard Plan," which we found was BACTC's lowest price plan for the 120 minutes per month user. BACTC's Standard Plan offers a 10 percent discount over the basic plan. However, if a user varies his or her use so that over the course of a year, he or she uses 80 minutes for three months, 120 minutes the following three months, and 160 minutes the three months after that, the effective discount is only 5 percent.

freight trucking, have arrived at measures which enable analysts to compare prices over time and across carriers despite variations in pricing arrangements. For example, the airline industry may employ revenue per passenger mile and the trucking industry revenue per ton mile. The DOJ has suggested a similar measure for the cellular industry: revenue per minute of use ("MOU").⁹⁵ This measure cuts through the various discount plans and promotions and thus provides an additional means of evaluating pricing in the cellular industry.⁹⁶ Applying this measure, revenues per MOU have increased by 9.6 percent in nominal terms and declined by 5.6 percent in real terms between 1989 and 1993. See Appendix A. The relatively slow decline in revenue per MOU suggests that effective prices may be falling slower than a comparison of "best" rates indicates.

It is true that under an MOU analysis, revenue per minute does not account for differences in contract terms, such as the restrictions involved in a contract discount plan. However, since there is no easy way to quantify this effect, it is necessary only to take into account that the "best" rate or the revenue per minute or subscriber will exaggerate the effects of rate changes. Indeed, in a backhanded way, other analysts also

95. U.S. Department of Justice, Memorandum of the United States in Response to the Bell Companies' Motions for Generic Wireless Waivers, July 1994, at 18.

96. Memorandum at 18, attached as Appendix D. Despite the fact that this measure does not include the access component of cellular prices, and may not fully capture declining usage patterns in California, it is still a valid measure of pricing behavior.

concede this point in their treatment of contracts of longer than one year. AirTouch's analysis confines its definition of the "best" rate to a one-year contract, even though carriers in California and elsewhere have longer contracts.⁹⁷ This is tacit recognition that the term of the contract does matter, and that comparing a one-year contract plan and a two-year contract plan is comparing essentially different products.

Some carriers cite the experience of PCS in the United Kingdom ("UK") as evidence that California cellular markets are competitive. In fact, such experience suggests the opposite. Specifically, AirTouch's consultant Hausman asserts that, "since PCS began operation in the UK during 1993, cellular prices in the United Kingdom have decreased by about 20-33 percent."⁹⁸ This observation actually is consistent with the CPUC's analysis for several reasons. First, it supports the CPUC contention that PCS will likely be a competitor to cellular in California markets. Second, it demonstrates that in the UK, cellular rates appear to have been well above their competitive levels in a duopoly. Third, it demonstrates that cellular rates declined dramatically after PCS actually began operation, not when spectrum was made available. The CPUC is delighted that UK consumers are enjoying the benefits of a competitive wireless communications market and we hope Californians enjoy similar benefits as soon as possible.

97. AirTouch, Appendix E at 4.

98. AirTouch, Appendix E at 20.

AirTouch further argues that regulation causes higher prices in regulated states, such as California, and that cellular regulation has cost California consumers \$240.5 million per year in the form of higher rates. While this claim is superficially provocative, it is utterly baseless and not supported by credible evidence. AirTouch bases its cost estimate on analysis prepared by Hausman. The CPUC will focus on the econometric analysis rather than the discussion and Table 1 on pages 4-5 of the Affidavit, because as Hausman acknowledges, economic factors other than regulation may also explain higher cellular rates in some markets in regulated states.

Hausman's econometric results are actually inconclusive: regulation is associated with higher prices only when some MSA's are examined, but not when others are examined. The affidavit concludes that, while "states which regulate do have significantly higher cellular prices in large MSA's,"⁹⁹ but concedes that, "I do not find an effect of regulation on cellular prices in smaller MSA's."¹⁰⁰ If this characterization is accurate, it is necessarily true that the relationship between prices and states that regulate would be weaker if all MSAs were examined. See Appendix H for the data used in AirTouch's econometric study.

Moreover, Hausman provides no rationale for considering only

99. AirTouch, Appendix E at 20.

100. AirTouch, Appendix E at 5, n. 6

the top 30 MSAs,¹⁰¹ instead of the top 50, the top 100 or all MSAs. If there is something unique about large markets, the model's control variables, such as population, mean income, and mean commute time will account for these differences. Hausman also never defines what makes the studied markets the top markets. Are they the most populous MSAs? Do they have the most subscribers?

In short, Hausman's study of a small set of the top 29 markets means that its conclusions are based on just three jurisdictions that regulate rates -- California, New York and Massachusetts -- and seven cities, five of which are in California. In other words, the conclusions concerning regulation are based on only three of the eight to fifteen states that regulate cellular rates, depending on the definition of regulation. From that small sample he concludes that high cellular prices in New York, Los Angeles, Boston and San Francisco-San Jose are definitive evidence that regulation causes higher rates.

The claim is not reasonably supported. First, AirTouch's rate comparison study captures any number of characteristics that California, New York and Massachusetts may have in common that influence cellular rates but that Hausman attributes to regulation. Specifically, Hausman's regulation dummy variable may capture a number of common attributes which may affect costs,

¹⁰¹. Actually, Hausman considered only the top 29 MSAs. AirTouch, App. E, App. 1, "58 Observations".

such as difficult terrain which requires more frequent cell citing, high real estate costs, restrictive land use policies, or population density. In addition, it captures a number of attributes that may affect demand, such as the presence of financial services, information services, high technology or entertainment industries. Attributing a causal relationship between regulation and high prices in New York, Boston, Los Angeles and San Francisco-San Jose is highly suspect.

Indeed, Hausman's model fails to account for other factors besides regulation which may be correlated to differences in prices. Only two of the four independent variables are statistically significant at the 90 percent confidence level: regulation and mean commute time. This means only one of the control variables, commute time, is statistically significant. More importantly, we do not know, whether Hausman's regulation variable would still be significant or even positive if he had included appropriate and accurate control variables. As you exclude appropriate explanatory variables, the remaining variables work harder to explain variation in the dependent variable. This often has the effect of increasing the estimated impact of these variables on the dependent variable.

This point cannot be overstated. There are many forces at work in an economic system. These forces are interrelated and the task for econometrics is to estimate these interrelationships and thus isolate as much as possible the individual effects of these forces on each other. When important variables are excluded or ignored, as they are in the Hausman study, the power of this analysis is significantly hobbled. In addition, the

model fails to account for much of the variation in price among markets.

The study also fails to account for the variation in prices because the economic control variables do not correspond to the relevant market. Hausman's control variables -- population, income and mean commute time -- are for a small subset of the relevant market. For example, the study includes the population for San Francisco of 1.6 million, when the relevant population for the San Francisco-Oakland-San Jose market is 6.3 million. Hausman inexplicably excludes Oakland and San Jose even though they are served by the same carriers who charge the same prices in the same geographic area. Based on only a subset of the relevant market, the regression then does not find population or income statistically significant; however, we do not know if the same would hold true if the population and income for the appropriate relevant market were used instead of a subset of the relevant market.

In addition, the study contains erroneous price data: for instance Hausman's data indicate that GTE Mobilenet charges higher prices for San Jose than for San Francisco, when these charges are in fact identical. The effect of both the pricing error and market combination error strengthen Hausman's results but completely distorts the facts. By overstating the price in one of the regulated markets, the price error will have the effect of making prices in regulated markets appear higher than they really are. And by splitting the San Francisco-Oakland-San Jose market into two markets, Hausman increases the number of

regulated markets from six to seven and makes his conclusions seem stronger than they really are.

Moreover, Hausman may have incorrectly classified California as a state that regulates rates when, according to his own definition, this may not be true. Although he does not define what he means by "regulation" in his affidavit for AirTouch, in similar studies he has defined regulation as follows: "By price regulation here I mean states which require advance notice tariff filings for change in cellular prices."¹⁰² In his 1992 affidavit, Hausman apparently considered advance tariff filing the salient feature of state rate regulation and the feature which had the most chilling effect on price competition. Thus, according to this definition, California should no longer be considered a state that regulates rates since the CPUC does not require advance tariff filing, but rather allows same day rate increases and decreases of any amount as long as they are below a cap. It is unclear what definition of regulation Hausman uses. Why, for instance, aren't all states which require wholesale tariffs, such as Ohio and Arizona, regarded as states that regulate rates?

AirTouch's estimate that regulation is costing customers \$240.5 million annually is worthless. As the preceding discussion illustrates, the econometric analysis upon which this estimate is based fails to establish any relationship between

¹⁰². (United States v. Western Electric Company, Inc. and American Telephone and Telegraph Company, Affidavit of Jerry A. Hausman, July 29, 1992, at 10, n. 15.)